

## PATENT SPECIFICATION (11) 1 457 164

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## (54) DEVICE FOR PROTECTING OPEN WOUNDS

(71) We, HOLLISTER INCORPORATED, a corporation organised under the Laws of the State of Illinois, United States of America, of 211 East Chicago Avenue, Chicago, Illinois, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a device for protecting an open wound or incision in an animal body.

Many instances arise which require the treatment of an incision or wound in the body of an animal, particularly a human. In many cases, drainage tubes are inserted into the body through an incision, or at its site of an incision or wound, and drainage of fluid from the interior of the body takes place. Usually, the drains are tubular, of soft, pliable, plastics material and the drainage itself occurs primarily along the exterior surface of the tube. As healing progresses, the tubes are withdrawn in stages on a more or less regular (for example, daily) basis, and are removed completely as healing nears completion. It is necessary for the physician treating the patient to have access to the wound or incision area to observe the progress of healing and detect infections which may arise, as well as to have access to the tubes so that they may be gradually withdrawn during the course of treatment. Inasmuch as it is undesirable to permit the incision or wound to be exposed for any long periods of time, because of the possibility of infection from the surrounding bedclothing or the air itself, it has heretofore been the practice to suitably bandage the patient thereby covering the site of the incision or wound. Obviously, it was necessary for the physician to remove the bandage in order to inspect the incision or wound, to withdraw the tubular drains, or otherwise to treat the patient. This practice not only required repeated bandaging of the patient, but was unsatisfactory inasmuch as the bandages themselves became saturated with fluid drain-

ing from the body, and otherwise presented difficulties to the physician and varying degrees of discomfort to the patient.

The present invention provides a device for protecting an open wound or incision without the necessity for bandages. According to this invention, there is provided a device for protecting an open wound or incision in an animal body, which comprises a sheet of gelatinous material for covering the wound or incision and for sealingly engaging the animal body around the wound or incision, the sheet being adapted to have an aperture formed therein to expose the wound or incision, and a cap member comprising thin plastics material with a peripheral ring of relatively stiff but deformable plastics material, the ring having an adhesive thereon for releasably sealing the ring to the sheet around the wound or incision.

The invention also provides a device for protecting an open wound or incision in an animal body and for collecting fluid exuded therefrom, which comprises a sheet of gelatinous material having one face for covering the wound or incision and for sealingly engaging the animal body around the wound or incision, the sheet being adapted to have an aperture formed therein to expose the wound or incision; a bag of thin plastics material having an inner wall and an outer wall, the walls being secured together at their peripheral edges to form the bag, and said walls having opposed holes therein; means for securing the inner wall of the bag to the other face of said sheet with the hole in the inner wall surrounding said aperture; and a cap comprising thin plastics material with a peripheral ring of relatively stiff but deformable plastics material, the ring having an adhesive thereon for releasably sealing the ring to the outer wall of the bag to surround the hole therein.

In order that the invention may be more fully understood, reference is made to the accompanying drawings, in which:

Figure 1 is an elevational view of a sheet of plastics material forming a part of a device of the present invention:

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Figure 2 is a view like Figure 1 of the opposite face of said sheet;

Figure 3 is a view like Figure 2 showing an aperture formed in the sheet;

5 Figure 4 is an elevational view of one form of bag which may be used in the combination of the present invention;

Figure 5 is an elevational view showing the bag of Figure 4 adhesively secured to the sheet of Figure 3;

10 Figure 6 is an elevational view of one form of cap which may be used;

Figure 7 is a view like Figure 5, partially broken away, and with the cap of Figure 6 positioned thereon; and

15 Figure 8 is a device of the invention wherein the cap of Figure 6 is sealingly engaged directly to the sheet of Figure 3 without the interposition of a bag.

20 Referring now to the drawings, there is shown a generally rectangular sheet 10 of plastics material covered adjacent its edges by a peel-off strip 11 of paper (for example) to expose an adhesive-carrying portion 12. The central portion of the sheet 10 carries a generally rectangular layer or blanket 14 of gelatinous material. Preferably, the gelatinous material includes karaya gum and may be made, for example, of a formulation similar to the karaya sealing ring disclosed in United States Patent Specification No. 3,302,647. The blanket 14 is covered with a peel-off sheet 15 which, together with the strip 11, may be removed when the sheet is to be positioned over a wound or incision (hereinafter called opening) in the body of a patient. Such an opening is indicated at 16 in Fig. 2. Before placing the sheet 10 and the blanket carried thereby over the opening 16, a suitable aperture such as the aperture 17 is formed in each so as to expose the opening 16 therethrough. The sheet 10 and, in the event it carries a blanket, the blanket 14, are pressed into sealing engagement with the skin of the patient so as to isolate the opening in the body from the surrounding tissue and, of course, expose tubular drains 18 which extend therefrom.

25 In many instances there is a substantial quantity of fluid draining from the opening 16 primarily along the exterior surface of tubular drains 18, and hence the present invention may provide means for collecting such fluids so as to avoid discomfort for the patient and to prevent irritation or infection which might otherwise occur. To this end, there is provided a bag 20 of flexible plastics material. The bag 20 is provided with an inner wall 21 and an outer wall 22, with the walls being sealed together along their peripheral edges 23 to form a bag. The inner wall 21 is provided with a hole 24 therein while the outer wall 22 is similarly provided with a hole 25 placed immediately opposite the hole 24. Surrounding each of the holes

and secured to respective faces of the walls 21, 22 forming the bag, are circular rings 26 and 27. The rings are formed of relatively stiff but deformable plastics material, and the face of the ring 26 on the inner wall is provided with an adhesive covered by a peel strip 28. Means in the form of separators are provided between the two rings to ensure that the walls 21 and 22 remain separated from each other in the area surrounding the holes so that fluid may drain into the bag without obstruction.

Means in the form of a removable cover or cap are provided for covering the hole 25 in the outer wall 22. The cap may take the form shown in Fig. 6, which includes a ring 30 of plastics material having an adhesive-carrying face 31 covered by a peel strip 32. Secured to the other face of the ring 30 is a cap 33 of transparent plastics material.

30 In use, the peel strip 15 may be removed from the central portion of the sheet 10 and a suitable aperture formed in the blanket 14 and the underlying portion of the sheet 10 of a size sufficient to accommodate and expose the opening 16 in the body of the patient. Peel strips 11 are then removed and the adhesive-bearing face of the sheet 10 and the blanket 14 are pressed against the skin of the patient for adherence thereto. As the aperture 17 closely approximates the size and shape of the opening 16, it can readily be seen that the tissue area surrounding the opening is isolated therefrom. This isolation performs a twofold function. First, it protects the surrounding skin area from irritation by the fluids draining from the body, and simultaneously helps to prevent the opening in the body from being contaminated by bacteria or other sources of infection which may be located on the adjoining skin.

35 If the drainage is relatively light, the cap of Fig. 6 may be pressed directly on the outer face of the sheet 10 as shown in Fig. 8. To this end, the peel strip 32 is removed from the ring 30 and the adhesive face 31 pressed against the outer face of the sheet 10 as shown in Fig. 8.

40 If, however, substantial drainage is expected, the cap of Fig. 6 is used in conjunction with the bag 20. To this end, the peel strip 28 is removed and the adhesive-carrying face 26 pressed against the outer face of the sheet 10 as shown in Fig. 5. The peel strip 32 is then removed from the cap and the adhesive-bearing ring is pressed against the ring 27 as shown in Fig. 7.

45 It is clear that the physician or surgeon in charge of the case can visually inspect the opening and the drainage through the transparent cap 33. Treatment of the opening area and partial removal of the drainage tubes may be effected merely by removing the cap 33, treating the patient, and then returning the cap to its original position. To facilitate re-

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removal of the cap, pull-tabs 29 are provided which may be grasped by the fingers of the physician or surgeon to remove the cap. The ends of the tubular drains 18 may be led directly into the space maintained between the inner and outer walls of the bag so as to facilitate drainage from the opening directly into the bag.

Thus, it will be seen that the care of the patient will be facilitated, the discomfort of repeated bandage changing will be avoided, and frequent inspection of the wound area is permitted by employment of the drainage system of the present invention.

#### WHAT WE CLAIM IS:—

1. A device for protecting an open wound or incision in an animal body, which comprises a sheet of gelatinous material for covering the wound or incision and for sealingly engaging the animal body around the wound or incision, the sheet being adapted to have an aperture formed therein to expose the wound or incision, and a cap member comprising thin plastics material with a peripheral ring of relatively stiff but deformable plastics material, the ring having an adhesive thereon for releasably sealing the ring to the sheet around the wound or incision.

2. A device according to claim 1, wherein the gelatinous material is a layer on a sheet of plastics material.

3. A device for protecting an open wound or incision in an animal body and for collecting fluid exuded therefrom, which comprises a sheet of gelatinous material having one face for covering the wound or incision and for sealingly engaging the animal body around the wound or incision, the sheet being adapted to have an aperture formed therein to expose the wound or incision; a bag of thin plastics material having an inner wall

and an outer wall, the walls being secured together at their peripheral edges to form the bag, and said walls having opposed holes therein; means for securing the inner wall of the bag to the other face of said sheet with the hole in the inner wall surrounding said aperture; and a cap comprising thin plastics material with a peripheral ring of relatively stiff but deformable plastics material, the ring having an adhesive thereon for releasably sealing the ring to the outer wall of the bag to surround the hole therein.

4. A device according to claim 3, wherein the gelatinous material is a layer on a sheet of plastics material, and wherein a relatively stiff but deformable ring surrounds each of said holes in said walls of said bag and is sealed to said walls, an adhesive-carrying face on the ring surrounding the hole in the inner wall is provided for securing the bag to said other face of said sheet with the hole in the inner wall surrounding said aperture, and wherein the ring of the cap is of approximately the same diameter as the ring in the outer wall.

5. A device according to claim 1 substantially as herein described with reference to Figures 1, 2, 3, 6 and 8 of the accompanying drawings.

6. A device according to claim 4 substantially as herein described with reference to Figures 1 to 7 of the accompanying drawings.

7. A device as claimed in any preceding claim when assembled and positioned on an animal body to protect an open wound or incision therein.

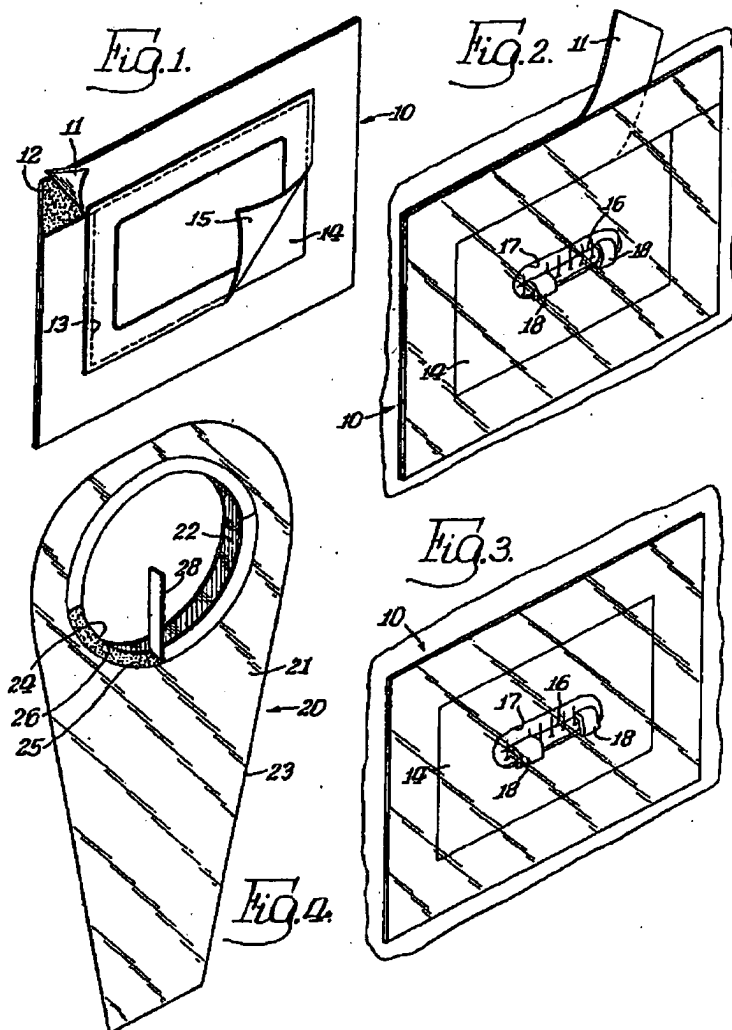
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Sheet 1



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